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ABSTRACT

The major works of the child/developmental psychologist and educator Wayne Dennis are listed in this annotated bibliography. (One-hundred-twenty-one citations are included.) For ease of use, the bibliography has been subdivided into the major headings of aging (7 citations); animistic thinking (9 citations); cross-cultural studies (8 citations); figure drawing (9 citations); infant development (24 citations); learning (23 citations); miscellaneous articles (14 citations); and psychology and psychologists (27 citations). (Author/RN)

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Annotated Bibliography of Wayne Dennis Ph.D.

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Annotated Bibliography - Wayne Dennis

The following is an annotated bibliography of the major works of noted child/developmental psychologist and educator, Wayne Dennis, Ph.D. For ease of use, the bibliography has been subdivided into the major headings of: aging (7 citations); animistic thinking (9 citations); cross-cultural studies (8 citations); figure drawing (9 citations); infant development (24 citations); learning (23 citations); miscellaneous articles (14 citations); and psychology and psychologists (27 citations) for a total of 121 citations.

ANNOTATED BIBLIOGRAPHY

Aging

Dennis, W. The longterm constancy of behavior: Sentence length. Journal of Gerontology, 1960, 15, 195-196.

"The published correspondence of 14 long-lived persons were examined decade by decade from age 20 to age 80 with regard to mean sentence length. No general trend was found toward increase or decrease of sentence length with age. Individuals remained remarkably consistent over a period of six decades."

Dennis, W. The age decrement in outstanding scientific contributions: Fact or artifact? American Psychologist, 1958, 13, 457-460.

Lehman in Age and Achievement provides data in the form of works cited in histories of art, science, and other fields, and find that they "very frequently indicated that many fewer significant contributions are made in the latter decades of life than in earlier periods...Taken at their face value, these studies indicate a drastic reduction in the output of outstanding works in the later part of the life span." But the apparent decline in the output of significant works in the later decades of life may be merely a reflection of the behavior of historians and others with regard to their treatment of historical epochs. The present paper addresses itself to the examination of citation practices of historians and anthologists as they are related to the study of aging... A more reasonable interpretation of the facts seems to be that, as the total output of science has increased, the percentage of literature cited by historians has declined." The trend toward increase in scientific literature "has necessitated a change in the behavior of historians."

Dennis, W. Age and productivity among scientists. Science, 1956, 123, 724-725.

Scientific publications per decade of life as listed in the Catalog of Scientific Literature, 1800-1900, were tabulated for 156 scientists belonging to a variety of scientific disciplines "who lived to age 70 or beyond and whose years of life from age 20 onward fell between 1800 and 1900."

It is notable that nearly 1/2 of their output appeared after age 50...Between age 20 and 70 members of the 70 year group produced a mean of 92.8 papers each. Between ages 20 and 80, the 80 year group published a mean of 102.2 papers per person.

Dennis, Wayne and Girden, Edward. Current scientific activities of psychologists as a function of age. Journal of Gerontology, 1954, 9, 175-178.

"In a group of 856 persons randomly selected from the American Psychological Association, readership of a journal which is received by all members is in general higher among persons in their 20's and 30's than it is among older age groups, but age differences are not pronounced. Publication rates are highest in the 30's and 40's, but sexagenarians publish about half as much as the most productive group."

Dennis, W. Predicting scientific productivity in later maturity from records of earlier decades. Journal of Gerontology, 1954, 9, 465-467.

Two groups were used in an analysis of the relation of age to scientific productivity as measured by numbers of published papers: (a) 43 psychologists born between 1850 and 1860, and (b) 41 recently deceased members of the National Academy of Sciences. Little decline in publication rate was found up to age 70.

Dennis, Wayne. Age and behavior. USAF School of Aviation Medical Project Report, 1953, Project No. 21-0202-0005, Report No. 1, 146 p.

This is a survey of the available information on psychological changes associated with aging. The information is categorized into chapters dealing with: (1) social behavior and personality, (2) mental abilities, (3) motor and occupational abilities and skills, (4) sensory changes, and (5) evaluations of present knowledge and methods and suggestions for future research.

Dennis, Wayne. Regression to childhood concepts in old age. American Psychologist, 1948, 3, 308.

Fifty persons, ages 50-80, residents of homes for the aged were subjects in an attempt to determine whether senile deterioration results in a return to childhood concepts. Piaget's test of animism was employed. Mental level before deterioration was estimated

by the Stanford-Binet vocabulary. Present mental level was measured by the Babcock-Levy. The results showed the level of animistic thinking approximated level of present functioning more closely than it approximated former mental level. It was concluded that there is some regression toward earlier stages of animistic thinking in deteriorated seniles.

Animistic Thinking

Also see Dennis, Wayne, Regression to childhood concepts in old age. Listed under Aging.

Dennis, W. Animistic thinking among college and high school students in the Near East. Journal of Educational Psychology, 1957, 48, 193-198.

Ss were 747 Near Eastern college and high school students who were questioned as to whether each of several objects is or is not living. One or more animistic answers were given by 79%. Frequencies in animistic answers in various groups were much higher than those secured among American students of comparable educational backgrounds. Differences were assumed to mirror differences in diffusion of scientific conception and information among these populations.

Dennis, Wayne. Animistic thinking among college and university students. Science Monitor, New York, 1953, 76, 247-249.

Preliminary findings indicate that "apparently, in the absence of specific instruction, 'educated' persons in modern societies possess many conceptions of the world that are identical with those of the child and of the uneducated," e.g., animistic notions.

Dennis, Wayne & Mallinger, Betty. Animism and related tendencies in senescence. Journal of Gerontology, 1949, 4, 218-221.

A standardized form of Piaget's procedure devised by Russell and Dennis was given to 36 senescents (18 men), 70 years or older, residents in old-age homes. The Terman-Merrill vocabulary test indicated practically all had at one time an IQ of 100 or higher. 75% gave answers which were interpreted as immature, and frequently appeared identical with those given by children. With regard to the possession of animism and related tendencies, it was concluded, these old people were inferior in concepts to 12 to 14 year old children, and only a minority gave what have been called adult answers. While the evidence of this preliminary research is not entirely

conclusive, the results are interpreted as a return in senescence to childhood concepts presumed to rest upon decline in mental ability (neurologic deterioration) of senility.

Dennis, W. Animism and related tendencies in Hopi children. Journal of Abnormal Social Psychology, 1943, 38, 21-36.

"98 Hopi children between the ages of 12 and 18 years were given a standardized interview with respect to animism and also a standardized interview with regard to moral realism and 69 of them were further questioned with respect to the attributions of consciousness to objects. The Hopi subjects were more animistic and expressed more belief in the consciousness of objects and in moral realism than do white American subjects of the same ages. The concepts of the Hopi children, however, are of the same types as those found among white children... The differences in the rate at which early ideas are abandoned in Hopi and white communities may be due to a variety of cultural factors which at present cannot be separated."

Russell, R. W. & Dennis, W. Note concerning the procedure employed in investigating child animism. Journal of Genetic Psychology, 1941, 58, 423-424.

This is a supplementary note to an earlier paper by the same writers clarifying the nature of one part of the experimental technique.

Russell, R. W., Dennis, W., & Ash, F. E. Studies in animism. III. Animism in feeble-minded subjects. Journal of Genetic Psychology, 1940, 57, 57-63.

When 430 feeble-minded persons (MA's: 2 yrs. 11 mos.-11 yrs. 7 mos.; CA's: 7 yrs. 2 mos.-64 yrs.) answered standardized series of questions on the animation of various objects, their responses could be classified according to Piaget's four stages. Comparison of normal and feeble-minded subjects with the same MAs showed the latter slightly advanced in their animistic notions. Similar comparisons of older and younger feeble-minded Ss with the same MA's showed the older advanced over the younger subjects.

Russell, R. W. & Dennis, W. Studies in animism: I. A standardized procedure for the investigation of animism. Journal of Genetic Psychology, 1939, 55, 389-400.

Using a list of 20 objects, 8 of which were actually present in the room, it was possible to develop a standardized questioning procedure for investigating children's animistic notions. 385 school children, 3 to 15½ years old, approximating a normal distribution of intelligence, served as subjects. 3 judges then classified the answers independently into the stages of animism outlined by Piaget; there was unanimous agreement in 87% of the cases. When the responses made by 133 Ss re-examined one week after the first test were classified, unanimous agreement was obtained in 94% of the cases. Evidence is offered for the reliability of the procedure.

Dennis, W. Piaget's Questions Applied to Zuni and Navaho Children. Psychological Bulletin, 1940, 37, 520.

Piaget's methods of investigating children's concepts have been applied to a number of Indian children belonging to the groups mentioned above. The questions covered the fields of realism, artificialism, and animism. In the latter connection the standardized procedure developed by Russell and Dennis was employed. All the answers obtained were of the same type as those reported by Piaget. The number of cases at any age level is insufficient to reveal whether or not childish conceptions disappear at the same rate in primitive as in civilized subjects. However, the evidence tends to show that artificialism is less marked in primitive societies than in the American and European child. The ideas of the Zuni and Navaho children are compared with the mythological beliefs of their elders, and certain differences are noted. It is concluded that the evidence favors the view that the thought tendencies described by Piaget are autogenous.

Dennis, W. Historical notes on child animism. Psychological Review, 1938, 45, 257-266.

The recent predominance of tests and measures of mental growth in child psychology has led attention away from the problem of animism, so that Piaget's emphasis on this topic seems novel. But the study of child animism dates back to at least Tiedemann's writings in 1787. Other writers have stressed the phenomenon, notably Hall and Sully in recent times.

Cross Cultural Studies

Also see Dennis, W. Animism and related tendencies in Hopi children. Listed under Animistic thinking.

Also see Dennis, W. Piaget's Questions Applied to Zuni and Navaho Children. Listed under Animistic thinking.

Dennis, W. The uses test. Perceptual Motor Skills, 1974, 39, 3-28.

Describes the development, rationale, and evaluation of the 50-item Uses Test, which contains questions about the uses of various objects. The test is designed to assess values in 11 - 13 year old children from various cultural backgrounds, but it has also been used successfully with adults. Administration, translation, scoring and interpretation guidelines are given. Hand scoring is used, and answers are placed into one of eight categories (sustentative, benevolent, malevolent, hedonistic, esthetics, religious, hierarchical, and not scorable). Reliability and validity data from a variety of studies are presented; interscorer correlations for each of the 7 scoring scales ranged from .83 to .99. Test-retest reliability (one week) coefficients for college, public school, and vocational students ranged from .302 to .776.

Dennis, Wayne. A note on sex equality in the incidence of left-handedness. Journal of Educational Psychology, 1958, 49, 209-210.

In 11 schools in Beirut, Lebanon, the frequency of left-handedness among 2656 children was found to be 5.0% in boys and 4.9% in girls. This suggests the prevalence of left-handedness in males found in studies done in Europe and America might well be a consequence of cultural pressures rather than biological differences.

Dennis, W. A cross-cultural study of the reinforcement of child behavior. Child Development, 1957, 28, 431-438.

"The critical incident technique was used to investigate the relative frequency with which different kinds of behavior are rewarded in three Near Eastern groups of children and in an American group. Highly significant differences were found between the American group and the Near Eastern groups, they have a considerable degree of similarity... rewarding behavior by praise, and by other means, is an important method of transmitting and inculcating social values and norms...the critical incident technique is recommended to psychologists, anthropologists and others as a useful tool in making cross-cultural comparisons."

Dennis, W. Uses of common objects as indicators of cultural orientations. Journal of Abnormal Social Psychology, 1957, 55, 21-28.

"A technique for the study of children's concepts of the uses of common objects...has been illustrated with American and Lebanese groups and to a lesser extent with Sudanese Ss. The study demonstrated that in regard to universally present objects...children of different cultures differ in their ideas as early as five years of age. It has also demonstrated that the test responses enable one to formulate hypotheses concerning interests, values and activities which are being developed in different groups of children."

Dennis, W. Are Hopi children non-competitive? Journal of Abnormal Social Psychology, 1955, 50, 99-100.

"In a study of Hopi children, a considerable proportion of the Ss apparently exhibited competitive behavior. In terms of scores for competition many Hopi Ss exceeded the mean scores of white groups."

Dennis, W. Performance of Hopi Indian Children on the Draw-a-man Test. Psychological Bulletin, 1942, 39, 574-575.

Almost with exception it has been found the American Indians test below white norms on psychological tests. The poorer performance of Indians can be explained in terms of cultural handicaps. This is true even of those Indians groups which have been given non-language tests, since the performance required by non-language tests are often as unfamiliar to the Indian child as is the English language. Among the Pueblo Indians of Arizona and New Mexico, however, graphic and plastic arts have been employed for centuries. The Pueblo child is acquainted with drawings on pottery and on ceremonial objects and he engages in making pencil and crayon drawings at the government schools. In Goodenough's Draw-a-man Test, Pueblo children show no environmental disadvantages. With the cooperation of the government schools the test was given to all children of two Hopi mesas between the ages of 6 and 11 years, a total of 153 subjects. The average IQ of this group was 107. It is suggested that different groups may differ markedly in ability.

Dennis, W. & Dennis, M. G. The effect of cradling practices upon the onset of walking in Hopi children. Journal of Genetic Psychology, 1940, 56, 77-86.

In all but two Hopi Indian villages in Arizona, infants are tightly bound to a cradling board on the first day of life, and for almost all of the first three months can move only the head. Thereafter the amount of freedom increases gradually, with great individual differences in age at which the board is discarded (range for 14 cases: 4-14 mos. of age). There is no statistically significant difference in age at onset of walking between (1) Hopi using the board and Hopi not using the board, (2) Hopi using the board and Terva using a cradle for daytime naps. Hopi infants are significantly retarded (1-2 mos.) as compared with eight white groups and one mixed group reported by others, but the cause of retardation is not determined.

Dennis, W. Is infant behavior appreciably affected by cultural influences? Psychological Bulletin, 1936, 36, 598-599.

In the tribal culture of the Hopi Indians, the infant receives a treatment which differs in many respects from that given to the white American child. The Hopi infant is subjected to restraint through the process of cradling; he is always in the presence of an adult or an older child; he nurses throughout the first year or longer; he receives no elimination training during the first year; and he receives a minimum of discipline, especially with respect to being warned against damage of household equipment and other aspects of the material culture. The author's field notes and observational data show that in spite of these cultural differences, infants among the Hopi exhibit the same social and motor responses as do American infants. Positive social responses appear at the same age in both cultures, and shyness and fear of strangers likewise appear at the same age levels. Other reactions likewise are entirely comparable.

Figure Drawing

Also see Dennis, W. Performance of Hopi Indian Children on the Draw-a-man Test. Listed under Cross Cultural Studies.

Dennis, W. Racial Change in Negro drawings. Journal of Psychology, 1968, 69 (1), 129-130.

Drawings of a man were obtained from an introductory

psychology class in 1957 and in a comparable class in 1967. Only the drawings made by Negroes were considered. No clear-cut representations of Negroes were obtained in 1957. In 1967, 18% of the drawings definitely represented Negroes. The findings are interpreted as a reflection in drawings of the recent black pride movement, in which students at Howard University have been participants.

Dennis, W. Goodenough scores, art experience, and modernization. Journal of Social Psychology, 1966, 68 (2), 211-228.

The mean Goodenough scores of 40 groups differing widely in original culture and in degree of modernization are presented. The data were obtained primarily from 6 year olds who were in their first year of school, but some data from some older children and from children not in school is included. The Goodenough IQ means vary from 53-125. It is proposed that the independent variable most directly related to the diversity of group means is the amount of experience with representational art and encouragement to engage in it. Variation in exposure to representational art may be due to differences in development of native art or to the degree of exposure to Western art, or to both. Since exposure to Western visual mass media is usually accompanied by exposure to other aspects of Western civilization, it is hypothesized that in the case of groups with little indigenous art, Goodenough scores reflect different degrees of acculturation to Western civilization.

Dennis, W. and Aras, Alev. The religious content of human figure drawings made by nuns. Journal of Psychology, 1965, 61 (2), 263-266.

Drawings of a man were obtained from 100 Lebanese nuns. Of these, 74 had some religious content, usually involving the central figure. The results are interpreted as favoring the hypothesis that drawings usually reflect the values of the groups to which the Ss belong.

Dennis, W. and Raskin, Evelyn. Further evidence concerning the effect of handwriting habits upon the location of drawings. Journal of Consulting Psychology, 1960, 24, 548-549.

5 linguistic groups (Turks, Combodians, Japanese, Iranians, and Israelis) were studied. Human figure drawings are located in the quadrant of the page within which the S begins to write.

The study supports other studies in suggesting that a factor other than personality influences location of drawings.

Dennis, W. The human figure drawings of Bedouins. Journal of Social Psychology, 1960, 52, 209-219.

It is proposed that human figure drawings reflect cultural traditions in respect to art forms even in societies in which art plays a minimal role. The human figure drawings of 100 Bedouins are examined from this point of view; Bedouins have very little exposure to realistic art and almost no experience in producing realistic drawings. They do, however, see and make nonrepresentational decorations which are low in detail, geometric in form, simple, and small. These decorations consist of surfaces bounded by straight lines and are often shaded or colored. Bedouin drawings of the human figure were found to conform in several respects with their traditional art. They are poor in detail, earning a mean Goodenough IQ of only 50-55. The drawings are small, averaging only 2 inches in height. They are made up largely of straight lines and darkened surfaces. Whether Bedouin drawings reflect Bedouin personality is discussed. While the present data do not provide a definitive solution to this problem, they suggest a negative answer.

Dennis, W. Handwriting conventions as determinants of human figure drawings. Journal of Consulting Psychology, 1958, 22, 293-295.

There may be determinants of drawing position which are cultural and which have little, if any, relationship to personality. Culture determines the position on a page at which a person begins to write. The study examines the drawing location of two classes of writers; those who begin to write at the top left, and those who begin to write at the top right. The Goodenough Draw-a-man Test was used. The data presented serve as a caution to interpreting cross-cultural differences in drawing locations as indicative of personality differences. These differences may be due to habit patterns with little relationship to emotional or social traits.

Dennis, W. Early graphic evidence of dextrality in man. Perceptive Motor Skills, 1958, 8, 147-149.

"An analysis of 120 instances of hand preference in the Beni Hasan pictures and 105 such instances from the tombs at Thebes

led to the conclusion that the various activities depicted in the paintings showed a predominant right-hand preference. This preference was not a function of the direction in which the figures were facing, but appears to reflect the actual use of the right hand in skilled acts by Egyptians, at least as early as 2500 B.C.

Dennis, W. Performance of Near Eastern children on the Draw-a-man Test. Child Development, 1957, 28, 427-430.

Draw-a-man tests given to children between the ages of 5 and 10 years in Lebanon and Egypt indicate that at ages 5 and 6, the mean Goodenough quotient is approximately 100. In most groups the mean quotient decreases with age. A cultural explanation of this decrease is suggested.

Dennis, W. The performance of Hopi children on the Goodenough Draw-a-Man Test. Journal of Comparative Psychology, 1942, 34, 341-348.

The author administered the Goodenough Draw-a-man Test to 75 girls and 77 boys from Hopi Indian schools, in an attempt to gain an estimate of their intelligence in which they would not be under an environmental handicap. He found an average IQ for the girls of 99.5, for the boys of 116.6, and for the group as a whole of 108.3. "The difference between the sexes is interpreted as due to the fact that graphic art is traditionally a masculine interest in Hopi culture, and hence boys develop a greater interest in art and engage in more practice than do the girls." Among the 6-year-olds most of the drawings showed generalized human figures with few representations of cultural traits. In the 10-year-old group approximately 1/3 of the subjects drew figures in which cultural attitudes could be recognized. Thus the drawings show an increase in socio-differentiation with age.

Infant Development

Dennis, W. Causes of retardation among institutional children: Iran. Journal of Genetic Psychology, 1960, 96, 47-59.

Data concerned behavioral development among 174 children aged 1-4 years, in three Iranian institutions. In two of the institutions infant development was greatly retarded while in the third, it was much less retarded. The extreme retardation in the two institutions was probably due to paucity of handling, which retarded the children in regard to sitting alone and in

regard to onset of locomotion. Lack of experience in the prone position prevented children from learning to creep and resulted in locomotion by scooting. In the third institution, in which children were frequently handled in sitting and prone positions, motor development resembled that of most home-reared children. The important contributions of experience to the development of infant behavior must be acknowledged.

Dennis, W. and Najarian, Pergrouhi. Infant development under environmental handicap. Psychological Monograph, 1957, 71 (7), (Whole No. 436), 13 p.

A report on the behavioral development of infants raised in a foundling home in Beirut, Lebanon. This institution provided a rather unusual environment in view of the fact that "... 'mothering' and all other forms of adult-child interaction are at a minimum because the institution is severely understaffed." The Catell Infant Scale, Goodenough Draw-a-man Test, Knox Cubes, and Proteus Maze Tests were applied to these children in accordance with their age. The data suggests that these infants show essentially normal development during the first two months of neonatal life, that there is some retardation during the 3 to 12 months age period, probably due to the lack of learning opportunities, but that by the time the child reaches an age of 4½ to 6 years, his performance has once again approached nearly normal levels. The doctrine of "permanency of early environmental effects" does not seem to be supported in this study.

Dennis, W. Mr. Janus on children's language. Journal of Genetic Psychology, 1943, 63, 183-185.

Janus reports an investigation of children's language from 18 to 66 months and concludes that there is no justification for Piaget's hypothesis that language in early childhood is primarily egocentric. The value of these conclusions is made uncertain, however, by Janus' failure to include data from situations where children might be expected to use egocentric language and his failure to present adequate statistical treatment of his data.

Dennis, W. Is the newborn infant's repertoire learned or instinctive? Psychological Review, 1943, 50, 330-337.

Although common sense sees a large instinctive element in the

behavior of the newborn infant, some writers suggest that all of the neonate's behavior may have been learned during the fetal period. A critical examination of the relevant evidence on prenatal responses and the possibility that congenital responses may have been learned is given. Experiments on neonatal conditioning are considered not to have any bearing on the question of fetal behavioral development. Furthermore, operant conditioning and trial-and-error learning have not been demonstrated either in the fetus or in the newborn infant. The author concludes that "most of the behavior of the infant at birth is unlearned and that fetal development is almost entirely a matter of maturation."

Dennis, W. On the possibility of advancing and retarding the motor development of infants. Psychological Review, 1943, 50, 203-218.

The author proposes the theory that infants who are superior to the average child in some one respect, as superior strength, will not be advanced in motor development, but that infants suffering from a corresponding deficiency may be retarded. The discussion is oriented primarily toward walking. Three postulates are formulated: (1) there are multiple requirements for the onset of walking, (2) these requirements are not met simultaneously, and (3) these factors are to some degree independent in their development. The deductions are made that the onset of walking (1) can be delayed by postponing the fulfillment of any single factor beyond date of normal walking, and (2) can be induced at a specific date earlier than normal only if all factors involved are moved forward to this date. Ossification and strength, intelligence, sensory handicaps, special practice, and restriction of practice are discussed in relation to the onset of walking.

Dennis, W. Piaget's questions applied to a child of known environment. Journal of Genetic Psychology, 1942, 60, 307-320.

The author's daughter, who was acquainted with children's literature but had received "simple, natural science explanations of natural phenomena" in response to her questions, was tested at intervals for nearly 4 years with Piaget's questions. When testing began at 2 years, 9 mos. of age, she displayed the typical child's notions about the origin of names, dreams, etc. which Piaget reports. It is proposed that these were auto-genous answers, not transmitted by adults, qualitatively different from the more accurate ones which were given at 6 years, 2 mos. of age.

Dennis, W. Effect of puberta praecox on the age at which onset of walking occurs. American Journal of Disabled Children, 1941, 61, 951-957.

The author examined the cases of pubertas praecox reported in the literature for comments about the motor development of these children. 25 cases of non-pathological origin were selected for inclusion in the study. It was found that these children walked at the usual age.

Dennis, W. Infant development under conditions of restricted practice and of minimum social stimulation. Genetic Psychological Monograph, 1941, 23, 143-191.

This study gives additional data on fraternal twins reared from the beginning of the second to the end of the fourteenth month under conditions of minimum social stimulation. The present report is concerned primarily with "the responses which a child would develop if he were removed as far as is possible from the influence of adults and other children." Such behavior is described as autogenous. The author concludes that "practically all of the common responses of the first year of life may be developed autogenously...if the well-being of the infant is assured, the behavioral development will take its normal course...Maturation in and of itself seldom produces new development items, but maturation of structures when accompanied by self-directed activity leads to new infant responses."

Dennis, W. Does culture appreciably affect patterns of infant behavior? Journal of Social Psychology, 1940, 12, 305-317.

Infant care among the Hopi and Navajo differs considerably from that of the whites. At birth, Indian infants are bound and cradled, which prevents bringing the hands to the mouth, watching the hands, or putting the feet in the air. Indian infants are breast-fed until at least one year of age, and the breast is used as a pacifier for hunger, pain, and fright. There are few prohibitions and no attempts at habit training or time scheduling previous to one year of age. In spite of these differences in training, the behavior patterns of the Indian infant do not differ from those of the white child prior to one year of age. "This corroborates the view that the characteristics of infancy are universal and that culture overlays or modifies a more basic substratum of behavior."

Dennis, W., & Russell, R. W. Piaget's questions applied to Zuni children. Child Development, 1940, 11, 181-187.

Zuni children, aged 8-16 years were examined with some Piaget methods. With respect to animism, the answers made by the Zunis were of the same types as those described by Piaget and by writers in a study of white American children. The Zuni subjects, however, seemed to be somewhat retarded in their development in this area. Regarding ideas of consciousness, the organ of thought, and dream realism, the results for the artificialistic origins were given in reply to questions about the origins of objects by the Zunis than by the white children. More cases must be studied before the differences noted can be considered significant.

Dennis, W. Infant reaction to restraint: an evaluation of Watson's theory. Trans. New York Academy of Science, 1940, 2, 202-218.

A brief review of investigations concerning native emotions precedes the evaluation of Watson's theory. By acceptance of Dennis' conclusions the apparently conflicting data can be reconciled. (1) The classic rage reaction, better classified as restlessness and crying, can be elicited in the neonate by any intense and enduring stimulation. (2) Restraint of movement, if accomplished without intense stimulation, need not lead to the negative response (e.g. in the prenatal situation and infant-binding). (3) At a later age any interference with a customary sequence of behavior or ongoing activity (frustration) elicits the negative reaction. Whether or not the restraint of movement or another factor is of a thwarting nature thus depends both upon the immediate state of the organism and upon learning. The investigator summarizes his position: "Reaction to frustration is not congenital or instinctive but it is autogeneous" (learned behavior not socially transmitted).

Dennis, W. Infant development under conditions of restricted practice and of minimal social stimulation: a preliminary report. Journal of Genetic Psychology, 1938, 53, 149-158.

The two infants studied yielded during their first seven months (the experimental period) a record of development not distinguishable from control records of infants in normal environments. Certain retardations in response are believed to be due to specific restrictions of motor practice.

Dennis, W. Desmonceaux's study of the newborn. American Journal of Psychology, 1937, 49, 677-678.

A copy of Desmonceaux's early (1775) monograph on the vision of newborn babies is to be found in the Library of the Surgeon General's Office at Washington. The only material in it on vision proved to be an anecdote, apparently received second hand. The discussion is largely concerned with diseases of the eye.

Dennis, W., and Dennis, M. G. Behavioral development in the first year as shown by 40 biographies. Psychological Review, 1937, 1, 349-361.

Excluding references in Spanish, Italian, and Japanese, the authors examined the 40 fullest available biographies of children in the first year of life to present the data in tabular and usable form. Certain source material is rejected, and only those behavior items are reported and dated by 10 or more biographers are recorded, with the median age for the appearance of each item. Objective definitions of the 50 items are formulated and stated. A comparison of the medians in this study with those in Shirley's data shows relatively little discrepancy.

Dennis, W. Infant development under minimum social stimulation. Psychological Bulletin, 1936, 33, 750.

The purpose of this experiment was to determine whether or not the development of infant behavior will follow its normal course in the absence of the usual social stimuli, such as the fondling of the adult, the adult's interest in new actions and his encouragement or discouragement of these actions and his attempts at teaching. To this end two infants were reared under laboratory control for the first 13 months of life with every provision for their physical wants but under conditions of semi-isolation. The experimenter attempted to exercise the minimum of handling, of reward, and of punishment, and tried as far as possible to leave each infant to its own devices in the matter of behavioral development. The infants thrive under the conditions of the experiment and were happy, healthy, and active. A comparison of the experimental Ss with control cases shows that the semi-isolated infants developed all of the typical responses of the first year, and that each of these responses appeared within the usual age-period for its manifestation in normal children. Other considerations lead to the conclusion that these new activities do not occur instinctively, but develop through the child's own activity with only the very minimum of stimulation from adults.

Dennis, W. A bibliography of baby biographies. Child Development, 1936, 7, 71-73.

Only those biographies are listed which are primarily baby biographies, including material on the first three years of life; and, to avoid confusion with language biographies, only those are included which touch on two or more phases of the child's development.

Dennis, W. The effect of restricted practice upon reaching, sitting, and standing of two infants. Journal of Genetic Psychology, 1935, 47, 17-32.

Two children (twins) were reared up to the end of their fourteenth month under restrictions of activities consisting in part of keeping them on their backs and not permitting them to sit or stand. Visually directed reaching and grasping, sitting alone, and standing with help, were retarded in both Ss beyond the upper age limit found in normative studies by other investigators. It is concluded that such retardations resulted from the restrictions of exercise. Each response was readily established when practice was offered. Some alternative explanations, such as general muscular weaknesses, are rejected for reasons that are advanced.

Dennis, W. A psychologic interpretation of the persistence of the so-called Moro reflex. American Journal of Disabled Children, 1935, 50, 888-893.

The response is a quick spreading of the arms on an appropriate stimulation. Its persistence is considered by some authors to be a pathologic sign; it is here suggested that the persistence may be due to mental arrest. Older normal children are conditioned to contacts in their ordinary experiences and so can inhibit the response; feeble-minded children do not condition so readily, and so learn to inhibit the response at a later age. Observations of the reflex in two 15-month-old twins are reported. The Moro reflex can be used to classify intelligence of infants, but in itself is an inadequate measure for the purpose.

Dennis, W. An experimental test of two theories of social smiling in infants. Journal of Social Psychology, 1935, 6, 214-223.

The theories that smiling is an instinctive response to the human face or voice, and that there is some other simple, primary stimulus to smiling are rejected on the basis of

careful observation and experiments on two fraternal twins. Rather it appears that smiling is a conditioned response which is the cessation of fretting, unrest or crying. Smiling in response to the human face occurred with equal or greater frequency than smiling in response to any other single stimulus.

Dennis, W. Laterality of function in early infancy under controlled developmental conditions. Child Development, 1935, 6, 242-252.

This report deals with "the laterality aspects of the behavior of two infants, who to the best of the experimenter's ability were guarded from an early age from incidents which might be expected to lead to a side preference in any activity." Nevertheless, laterality preferences did develop, and these preferences seem to be dependent "upon the situation and upon the particular response" rather than upon any general trait or cortical asymmetry.

Dennis, W. A description and classification of the responses of the newborn infant. Psychological Bulletin, 1934, 31, 5-22.

From 80 sources is gathered a classified list of nearly 100 responses, most of which are localized in some degree and many of which are total bodily responses that are patterned to form distinguishable totals.

Dennis, W. The age of walking of children who run on all fours. Child Development, 1934, 5, 92-93.

A tabulation of Hrdlicka's data from the book, Children Who Run on All Fours, shows that the children described walk alone at an average age of 12.97 mos. Since the average age of walking given by various investigators range from 12.77 mos. to 13.47 mos., it appears that Hrdlicka was mistaken in his contention that the habit of running on all fours produced a delay in the onset of walking.

Dennis, W. Discussion: the role of mass activity in the development of infant behavior. Psychological Review, 1932, 39, 593-595.

Irwin's theory that mass activity is the prototype of infant behavior is criticized, on the ground that it is not the only type of response in newborn infants, nor the first fetal response, and it has not been shown how reflexes can be individuated out of this mass activity when they obviously form no part of it.

Dennis, W. Two new responses of infants. Child Development, 1932, 3, 362-363.

Brief descriptions are given of the posture of nursing and the posture of defecation as observed in 17 very young infants and 5 prematures.

Learning

Dennis, W. Early recognition of the manipulative drive in monkeys. British Journal of Animal Behavior, 1955, 3, 71-72.

Dennis calls attention to early observations of primate behavior suggestive of the existence of a general manipulative motive. Protocols from Romanes and Thorndike are quoted.

Dennis, W. A note on the circular response hypothesis. Psychological Review, 1954, 61, 334-338.

The hypothesis that imitation arises because a response necessarily becomes associated with its own sensory consequences is shown to have a long history dating from its first statement by Hartley in 1749. It is shown that many eminent psychologists are unaware of this history and of the fact that the hypothesis has never received an experimental test.

Dennis, W., and Russell, R. W. Comments on recent studies of VTE. Journal of Genetic Psychology, 1939, 54, 217-221.

Muenzinger, in recent papers dealing with certain choice point behavior observed in the white rat, has suggested that such activity be called "vicarious trial and error" (VTE) and "implies that the relation of head movements to learning is an unexplored problem." He thus neglects earlier experimental results reported by Lashley, Peterson, and Dennis in separate papers. The term VTE has not yet been adequately defined.

Dennis, W. Spontaneous alternation in rats as an indicator of the persistence of stimulus effects. Journal of Comparative Psychology, 1939, 28, 305-312.

Previous studies indicated that rats confronted by two equally

long paths to food tended to avoid the path most recently transversed. In this investigation an increasing interval between the trials of a pair was introduced. The interval between trials could be increased to over a minute without influencing the alternation. Although the first choice in one unit of the maze affected the next choice in that unit, it failed to influence choices in other units. "The situation in spontaneous alternation differs from forced delay problems in that the rat in spontaneous alternation shows evidence of some sort of retention of its spontaneous activity, whereas in the forced delay problem the animal must retain the effects of a cue which has been given by the experimenter.

Dennis, W. A comparison of the rat's first and second explorations of a maze unit. American Journal of Psychology, 1935, 47, 488-490.

The two experiments agree with one previously conducted in showing that the rat's entrance of a section of a maze unit decreases for some time its likelihood of entering the same section. Since these results were obtained with different rats, with two types of maze units, and two sizes of one unit, and with two methods of inducing the animal to make a second choice, the results have at least some degree of generality. These studies are further evidence for the view, previously proposed, that negative adaptation to pathways is an important part of maze mastery, and that a reward, instead of eliminating excess movements, prevents the occurrence of complete negative adaptation.

Dennis, W. Goal gradient or entrance gradient? Psychological Review, 1935, 42, 117-121.

Heretofore, the distance of a given maze alley from the goal has been considered its most important attribute. This is brought out in Hall's goal gradient hypothesis. But the author points to data in experiments of Warden, Cummings, Montpelier, and his own, which indicate that distance from entrance is more important than nearness to goal. For example, the great decrease in difficulty of the second, third, etc. right-left pairs of alleys as compared with the first, in a 10-alley maze. If nearness to goal were the cause, then a short 6-alley maze should give quite different results, yet the results were practically the same. Warden got comparable effects even in a 2-alley maze. Several explanations of the effect of nearness to entrance are given. One is the distracting and emotionally disruptive effect of being so recently handled; another is the transfer of learning effect which develops in successive delays.

Dennis, W., and Gersoni, C. S. The effect of blindness upon a perfected elevated maze habit of the albino rat. Journal of Comparative Psychology, 1935, 19, 411-416.

After 30 rats trained on an elevated maze had reached a high level of accuracy, half of them were blinded. Whereas the normal rats continued to improve over their former level of performance, the blinded animals manifested a very great increase in errors. There were 370 post-operative errors for the blinded rats as compared with 16 for the normal ones. The blindness led to a new distribution but no stereotyping of errors. The authors believe, in the light of different results found by previous investigators, that sensory control of the maze must be highly specific to a given experimental situation.

Dennis, W. The learning of an elevated maze by blind and normal rats. Journal of Genetic Psychology, 1934, 45, 255-259.

10 normal and 10 blind rats were trained on an elevated maze which by several criteria were found to be more than twice as difficult for the blind rats. However, 5 of the normals were but slightly affected blinding after the habit had been learned.

Dennis, W. Congenital cataract and unlearned behavior. Journal of Genetic Psychology, 1934, 44, 340-351.

A review of the literature (35 titles) on the effects of removal of congenital cataracts offers no positive evidence of unlearned visual control, but the reports are inconsistent. It is suggested that an excellent field of research is offered in experimentally controlled observations of patients in ophthalmological hospitals.

Dennis, W., and Sollenberger, R. T. Negative adaptation in the maze exploration of rats. Journal of Comparative Psychology, 1934, 18, 197-205.

This investigation was an attempt to ascertain the significance for elimination of errors in the maze of the rats' initial exploration activity. 44 untrained animals were allowed to explore a single Y-unit of a block elevated maze for 5 mins. 2 weeks later they were allowed to explore a multiple Y pattern of the maze for 5 mins. The results are summarized as follows: "(1) Only 1/3 as many blocks were entered upon

the single unit as upon the multiple unit maze. (2) The number of units entered per min. decreased in the later mins. of exploration of both mazes. (3) There was no distinction between blind and true sections per se. (4) In facing a bifurcation, the rats took the pathway which they had less recently occupied twice as often as they did the section they had more recently occupied." The authors interpret the results as indicating the operation of a mechanism of elimination of entrances during the first few mins. in the maze before food had been obtained. "This process may be called negative adaptation. It is suggested that reward has the effect, not of eliminating the errors, but of preventing the negative adaptation of the rat to the true pathway."

Wingfield, R. C., and Dennis, W. The dependence of the rat's choice of pathways upon the length of the daily trial series. Journal of Comparative Psychology, 1934, 18, 135-147.

When allowed a choice of 2 equally long pathways leading to the food box, one started toward the food box and the other started away from it, 13 albino rats selected the pathway starting toward the food box 84% of the time. This was true when one trial a day was given. With interchange of the starting point and goal 47% of the runs were on the path in the direction of the food box. With 2 consecutive runs per day, there was almost perfect alternation between the two pathways. With 6 consecutive runs per day the alternations decreased to 68%. This experiment indicates that the results of the preceding experiments should not be interpreted as evidence for an alternation tendency as such, but rather as evidence for a tendency, under some conditions, to take varied pathways.

Dennis, W. The order of difficulty of maze alleys. Psychological Bulletin, 1933, 30, 616-617.

Previous studies of this problem have resulted in contradictory findings. Some investigators have found no influence of serial order, other have found that the difficulty of alleys decrease in the entrance-goal direction. The data in this report are collected only for repetitive simple alternation mazes, some from the author's experiments, some from the literature. Over 2,000 errors are analyzed. The data show clearly that in this type of maze, regardless of size, conditions, etc., alley-

difficulty decreased with serial order for at least the first four alleys. Comparison of four- and ten-alley mazes shows clearly that the four-alley maze is like the first four alleys of the long maze. From this fact the conclusion is drawn that the important factor is not proximity to the goal, for if that were the case one would expect the four-alley maze to resemble the last four alleys of the long maze, but that it is proximity to the entrance.

Dennis, W. Multiple visual discrimination in the block elevated maze. Journal of Comparative Psychology, 1932, 13, 391-396.

White rats run on a block-elevated pathway did not respond appropriately to the new visual cue when 2 units of the maze were changed in direction by partial rotation. When the units were constantly changed in a chance order, the rats learned the problem as a visual discrimination. The maze pattern was such as to eliminate directional orientation. "While a multiple visual discrimination habit can be developed in the block elevated apparatus by the use of typical discrimination procedure, the employment of maze procedure during the training period results in a different sensory control. The maze was easily learned in spite of the fact that a food-box orientation could not contribute to the choice of the true pathway." Seeing rats corrected their errors before reaching the end of the blind alleys, whereas blind rats ran to the end.

Dennis, W., Henneman, R. H., and Varner, W. B. A further study of the initial maze behavior of rats. Journal of Genetic Psychology, 1932, 41, 358-368.

In continuation of an earlier study in which it had been found that the rat in its initial behavior on an elevated maze made fewer errors than a truly random behavior would indicate initial choices on 3 additional mazes have been analyzed. The same principle is again demonstrated. From further study of the data, it is proposed that two factors may control the rats' initial choice of alternative pathways, namely the relations of these pathways to the bodily orientation of the rat as determined by its position in the immediately preceding alley, and the relations of the pathways to the direction of some more general and persistent cue.

Dennis, W., and Porter, J. M., Jr. Isolated action of compound stimuli in a locomotor habit of rats. Journal of Genetic Psychology, 1932, 41, 127-135.

The authors sought to determine whether maze behaviors may not normally be controlled by several receptors, any one of which may be effective in the absence of others. A circular discrimination apparatus so modified as to present a large negative area was equipped with a movable iron strip or trail, a square of white cardboard and a buzzer; and the positions of these possible cues as well as that of the food box were systematically varied. It was found that the highest percentage of correct runs was made when the stimuli were used together. This demonstration of the isolable action of compound stimuli is taken to challenge Watson's kinsthetic theory and Lashley's neural mechanism theory of the maze habit.

Dennis, W. An unusual case of loss of habit. American Journal of Psychology, 1932, 44, 188-190.

Two squirrels were observed to have an unusual method of opening nuts, viz. biting off the projection at the apical end and then splitting the nut into halves by gnawing at the flattened sides at the base of the apical projection. Tested in the dark, they continued to open nuts by this method. When the apical end was filed off, however, they could not discriminate the two ends, and gnawed at random on the surface of the nuts. After this test, the animals failed to discriminate the apical end of perfect hickory nuts (on which the test had been made) although they continued to discriminate hazel nuts and almonds. The conclusion is that discrimination is a learned response of an associational type.

Dennis, W., and Henneman, R. H. The nonrandom character of initial maze behavior. Journal of Genetic Psychology, 1932, 40, 396-405.

59 untrained white rats were allowed the freedom of a simple alternation multiple-T elevated maze for a restricted period of time, only 10 having been fed in the food box previously. 2 went from entrance to exit without error or retraining; and all others behaved in a non-random fashion making errors or re-tracing much less often than would be expected by chance. It is inferred that initial maze behavior is not purely random, as is so often assumed. The factors of an initial adjustment and the avoidance of errors demand attention.

Dennis, W. A block elevated maze for rats. Journal of Comparative Psychology, 1931, 12, 429-432.

An extremely simple laboratory maze is described which according to the author, has several advantages over the skeleton elevated maze.

Dennis, W. The proprioceptive ability of the white rat. Journal of Comparative Psychology, 1931, 12, 379-392.

The problem was to determine whether a simple maze could be accurately run upon the basis of proprioceptive cues alone. Normal animals learned the problem, but blinded animals had an average error of 15.2%. The author claims that proprioception is not accurate enough to explain maze orientation. Exteroceptive stimuli are essential for accurate performance.

Dennis, W. A study of learning in the white rat. Journal of Genetic Psychology, 1930, 37, 294-308.

Rats were trained in 3 single-choice mazes which differed only in length in 5 successive problems: to eliminate its blind alley, then successively to learn 4 alternate reversals of true and false paths. Mastery of none of the 5 problems was reached with any suddenness. Length of maze had but little effect upon number of trials necessary, but did induce speed of running. Repeated learning of the similar problems had no consistent effects upon runs required. Partial eliminations and head movements were studied in relation with differences in maze length, in problem order, in correct versus incorrect runs, etc.

Dennis, W. Responses of chicks when monocularly blind. Journal of Genetic Psychology, 1929, 36, 480-482.

Pecking responses were found to be as efficient as in normal chicks.

Dennis, W. The sensory control of the white rat in the maze habit. Journal of Genetic Psychology, 1929, 36, 59-90.

In a maze consisting of a pathway with 2 turns, it was found that 10 blind rats without vibrissae continued to touch the walls even after long training, and even when electric shocks were received upon such contacts, they were not eliminated. When the walls were removed, thoroughly trained rats were not

disoriented but they traced paths varying from that learned between the walls. It is concluded that proprioceptive impulses alone are sufficient for perfect maze performance, either contacts or sights serving as necessary releasing cues. Furthermore, the maze habit does not depend upon identical stimulations from trial to trial, is not an automatized invariable pattern, but may be called a variable habit.

Dennis, W. Observations on two responses of the white rats. Journal of Genetic Psychology, 1928, 35, 626-627.

Responses of nest mates to the squeals of a rat whose tail is pinched, and the stealing by one mother of young born to another on the same day as her own litter, are described.

Miscellaneous Articles

Dennis, W. Bibliographies of eminent scientists. Science Monitor, New York, 1954, 79, 180-183.

This article is devoted to presenting evidence that in most instances, eminent scientists have published an unusual number of scientific articles, monographs, and books. It also presents data that indicate that the greater the number of a scientist's publications the higher his scientific reputation is likely to be.

Koskoff, Y. D., Dennis, W., Lazovik, D., & Wheller, E. T. The psychological effects of frontal lobotomy performed for the alleviation of pain. In Fulton, J.F., et al., The Frontal Lobes, 1949, 723-753.

The effects of lobotomy in the relief of chronic pain is studied with appropriate controls by reference to 10 patients whose symptoms are reported (1) medically and clinically; (2) psychometrically (7 cases). In the latter, the Wechsler, Babcock-Levy, Porteus Maze, Rorschach, TAT, and Goodenough Drawing tests are administered to the "organic" patients before operation and again 3 months afterward. All organic pain cases free from "mental abnormality" showed some loss in intellectual abilities of a general type followed by, it is believed, a gradual restitution. The danger of generalizing from so few cases is stressed, present results being reported as trends. Data obtained from the administration of personality tests are to be reported later.

Dennis, W. The adolescent. In Carmichael, L., Manual of Child Psychology. New York: Wiley, 1946, 633-666.

Major sections of this chapter of the Manual are: the biological changes of adolescence, behavioral phenomena associated with normal puberty, behavior phenomena in precocious puberty, and behavior phenomena in delayed puberty. "...we have limited our survey to studies of mental-physical relationships at or near puberty" and eschewed the view "that adolescence is a social phenomenon." Current studies "must be regarded as pioneer research which will soon be supplemented by more extensive, more systematic, and more analytical investigations."

Blake, R., and Dennis, W. The development of stereotypes concerning the Negro. Journal of Abnormal Social Psychology, 1943, 38, 525-531.

White students in grades 4 to 11 of a Virginia school were asked to compare Negroes and whites on 60 traits. Younger students showed less agreement among themselves and often disagreed with the older students. It is suggested that young children first acquire a generally unfavorable attitude toward the Negro and are unwilling to attribute to him any good traits. With experience and age, the students learn the adult stereotypes which allow the Negro some good traits of religion, cheerfulness, and dancing ability, although they are still predominately unfavorable.

Dennis, W. The significance of feral man. American Journal of Psychology, 1941, 54, 425-432.

The author reviews some of the material respecting children purporting to have lived with animals and summarizes some of the difficulties that must be surmounted before there is scientifically valid evidence that they actually did so live. In particular he cites some of the data respecting their intelligence. "In view of our ignorance concerning the history of alleged isolated children, I suggest that these cases not be cited as evidence for any social or psychological theory. We know that there are idiots and imbeciles. We know that alleged feral man has similar characteristics. Until we have better evidence it seems best to reserve judgment as to whether or not 'feral' children were idiotic or imbecilic before they became 'feral'."

Dennis, W. Spalding's experiment on the flight of birds repeated with another species. Journal of Comparative Psychology, 1941, 31, 337-348.

2 buzzards were caged so that perching, soaring, and flying could not occur. Their first opportunity to exhibit these responses was given after 10 weeks of restrictions. On the first test, they flapped their wings while running but could barely raise themselves above the surface of the ground. When placed on a post they fell off one or more times. When their wings were spread on leaving the perch, the birds during the early trials often failed to land on their feet. The next tests were given after 2 weeks of additional restriction. Some improvement was manifested in perching and soaring but not in flying. Further tests were then given at short intervals. Improvement was slow. Retardation is attributed to lack of practice in normal flight reactions. Data on responses to persons and on feeding reactions are presented.

Dennis, W., and Bolton, C. Producing brain lesions in rats without opening the skull. Science, 1935, 81, 297-298.

Lesions of controllable area and extent may be produced in the brains of rats by applying cautery points for definite duration to the surface of the skull. Exposure of the cranial contents to the danger of infection is thus avoided.

Dennis, W. Adult interest as related to education. University of Virginia Rec., Extension Service, 1935, 20, No. 4, 5-14.

Questionnaire methods of studying adult interests are criticized. Interest studies based on actual frequency of various modes of behavior, made by librarians, publishers, etc., are reviewed as illustrative of methods to be used. The studies reviewed do not justify generalization beyond "first, that the interest in many adult educational activities has increased within the past half century; and second, that educational interests are more common among those who are already education."

Dennis, W. Traits associated with registration and voting. Journal of Abnormal and Social Psychology, 1932, 27, 270-278.

Ss were secured nearly all of whom were legally qualified to vote, and their social traits and political behavior were studied by

an objective method not requiring the knowledge or cooperation of the Ss. The distribution of the political behavior was found to be u-shaped. Most of those who registered, voted in one or both elections. Men of the business and professional classes and men who showed stability of residence and occupation registered and voted reliably more often than the average man. Other traits showed less certain association with the political behavior of men and the traits studies showed no reliable correlation with registration and voting among the women. With men, the amount of political behavior increased with the increase in the total number of social traits possessed.

Dennis, W. Sidedness in sleeping position in two species. Journal of Genetic Psychology, 1930, 37, 162.

Two squirrels and 36 cows were found to show some tendency to a sidedness when in reclining position.

Dennis, W. Rejection of wormy nuts by squirrels. Journal of Mammals, 1930, 11, 195-201.

Experiments with squirrels show that the rejection of wormy nuts does not occur in all individuals and therefore, it may be assumed that the behavior is learned. The bad nuts were rejected when all sensory cues except olfactory were eliminated.

Dennis, W. Some traits of certain persons associated with carnival attendance. Journal of Social Psychology, 1930, 1, 315-317.

Attendance was obtained by copying license plate numbers of 150 parked automobiles at the carnival grounds. The persons owning these license were determined from the state automobile registration records. Their names were sought in the city directory and compared with a random sample of 200 taken from the city directory as to occupation, etc. No statistically reliable differences were found.

Dennis, W. Registration and voting in a patriotic organization. Journal of Social Psychology, 1930, 1, 317-318.

The voting strength of the Daughters of the American Revolution is much greater than that of an equal-sized group of the average population. A group of superior social status has a greater voting

than a group of the same size from the population at large, but less than a numerically equivalent group of D.A.R.'s.

Weiss, A. P., Lauer, A. R., Burt, H. E., Dennis, W., Ellis, C. R., Forbes, T. W., Hare, R. A., Goldstein, L., Leftwick, J., & Ringwald, J. C. Psychological principles in automotive driving. Journal of Industrial Psychology, 1930, 11, 463-464.

A survey of citizens, students, truck and taxi-drivers indicates that one in three persons has an accident in 4.5 years of driving; any driver may expect to have one accident in 14 years of driving; persons with an accident repeat about once in 4 years; persons in the middle range of intelligence are most prone to accidents, in lowest range next; upper range individuals do not tend to repeat. A set of criteria is drawn up into a tentative scale for rating the success of driver en route. Study of physical responses to accidents as compared to non-accident drivers, using galvanometer responses. Other special apparatus used for measuring head movement, speed of discrimination, near-far accommodations, eye, hand and foot coordination, etc. were used and results discussed. Driving is to be considered as a complicated educational problem with actual performance measures more reliable than any others organized to date. Appendices give details of the scale for rating drivers en route.

Psychology and Psychologists

Dennis, W. Thorndike, Hunter and the delayed reaction experiment. American Psychologist, 1955, 10, 133-134.

In his account of his life in Vol III of the History of Psychology in Autobiography, E. L. Thorndike states "...the idea of the delayed-reaction experiment (which has proved the most valuable of my methods of studying animal mentality) came to me after 2 years work with animals." This is a surprising statement, since it challenges the priority of Hunter, who uniformly is credited with the first published research employing the delayed-response method. Facts are cited which suggest that "...Thorndike does not seem to have been justified in referring in 1936, to the delayed-reaction experiment as 'the most valuable of my methods of studying animal mentality'."

Dennis, W. and Girden, Edward. Participation in American Psychological Association voting. American Psychologist, 1955, 10, 212-214.

"Our study is limited to the ballots distributed in the Spring of 1954: the presidential nomination ballot, the presidential election ballot, and a ballot proposing changes in the by-laws... While a somewhat higher percentage of the Fellows vote than do Associates, nevertheless the Associates are so much more numerous that the great majority of the votes in each election came from this membership class." Approximately half of the respondents on each poll consisted of persons who had no divisional affiliation. Four tables are presented, one indicating the percentage of members of each division returning ballots and another indicating the percentage of voters belonging to each division.

Dennis, W. Scientific models for the investigation of child development. In Hock, P. H., & Zubin, J. Psychopathology of Childhood, 15-24.

Developmental psychology in the last quarter century has advanced very slowly, compared with some other branches of psychology, and this is attributable to the fact that few new techniques have been developed for the field, and to the fact that there has been too much dependence on correlational research models without real effort at experimental work.

Dennis, W. Psychology--yesterday, today, and tomorrow. In Bryson, L. Facing the Future's Risks. New York: Harper, 1953. p. 91-109.

The role of social institutions in fostering the growth of psychology is discussed with emphasis upon the part played by universities, industry, prisons, schools, philanthropic foundations, and government agencies. The author predicts that "in the next half century psychologists will contribute to the advancement of knowledge of the psychological differentiation of society, of the functioning of social groups, of preventive mental hygiene, and of psychotherapy." Psychology will continue to advance on a wide front and its major problems will be dealt with most successfully on an interdisciplinary basis.

Dennis, W. and Girden, Edward. Do psychologists read? The case of the Psychological Bulletin. American Psychologist, 1953, 8, 197-199.

In a random sample of the APA, 50% replies were received. "It was found that the reader-audience of specific items ranged from 9% to 58%...psychologists not only write but read."

Dennis, W. and Boring, Edwin, G. The foundings of the APA. American Psychologist, 1952, 7, 95-97.

The authors comment on the first meeting of the APA on July 8, 1892 at Clark University, of the 26 charter members at least 10, probably 13, were present. A roll call for the first meeting at Clark University is given.

Dennis, W. Historical beginnings of child psychology. Psychological Bulletin, 1949, 46, 224-235.

The report surveys the observational studies up to the time of the publication by Preyer (1882) and Hall (1883). The studies are classified as biographical, language, normative, and contents of children's minds. A special section deals with Galton's contributions.

Dennis, W. The background of industrial psychology. In Dennis, W., Current Trends in Industrial Psychology. Pittsburgh, Pa: University of Pittsburgh Press, 1949, pp. 1-13.

At the time of writing there are only 105 Fellows in Industrial Psychology in the country. Of these only 12 hold full-time positions with industrial firms and some are concerned more with administrative than psychological duties. Factors responsible for this situation include academic background of psychology, its youth, a feeling that science should be pure, and a matter of timing, which saw the emergence of practical applications, from 1920 to 1945, accompanied by an increasing demand for psychologists in colleges, as well as a lack of awareness in industry of what psychology had to offer.

Dennis, W. The new social psychology. In Dennis, W., Current Trends in Social Psychology. Pittsburgh, Pa: University of Pittsburgh Press, 1948, pp. 1-13.

"In science, the armchair phase is the earliest, and it never completely disappears...Later comes stage two which involves the making of observations, the recording

of data, etc....The third stage in the development of a scientific field is the establishment of semipermanent organizations and facilities for the advancement of the field...operating on a large scale and having continuity." Contributors to this symposium were "chosen in large part from research institutes, departments, bureaus, and laboratories whose recent establishment seems symptomatic of a new stage in social psychology." In introducing the contributors, the author not only praises the work of the groups with which they are associated but also states his impression "that...they are tremendously interested in what they are doing, are sure of the value of their work, and are confident of their ability to achieve worthwhile results." It is the author's opinion that "the current investigative movement in social psychology (so ably represented by the contributors) cannot fail."

Dennis, W. Psychology as a profession. In Dennis, W., Current Trends in Psychology. Pittsburgh, Pa: University of Pittsburgh Press, 1947, pp. 1-15.

In his introductory lecture of the series the chairman reviews certain immediately pertinent problems of the profession of psychology. Social acceptance and prestige of a profession depends upon its individual members. To ensure, or at least, to improve, the social position of psychology, the author argues for regulation through certification, high standards of training, careful personnel selection, and improvements in training methods. Psychology should apply its own research findings to its own problems.

Barker, R. G., Kounin, J. S., and Wright, H. F. (Eds). Child Behavior and Development; A Course of Representative Studies. New York: McGraw-Hill, 1943, pp. 652.

The editors had had the members of the Society for Research in Child Development ballot on the six studies most desirable to present in a book of central reading material for college students. 35 topics are presented. Wayne Dennis is one of 42 contributors.

Dennis, Wayne, and Dennis, Margaret W. (Eds). The Intellectually Gifted: An Overview. New York: Grune & Stratton, 1976.

This book presents a collection of 25 chronologically arranged articles on the psychology of intellectually gifted children. Topics include early mental traits of 300 geniuses, the Terman study of gifted children, special education for the gifted child, a report on education programs for the gifted in four states, and conditions which are productive of superior children.

Dennis, W. Children of the Creche. New York: Appleton-Century-Crofts, 1973. 120 p.

This book studied the effects of institutionalization and adoption on intelligence and behavior. Ss were homeless children cared for at a home for girls, where opportunity for cognitive experience was minimal, and at a home for boys, where opportunity was normal. Ss adopted by Lebanese and U.S. families were also tested. Results showed higher IQs and better social adaptation among the boys than among the girls and among the adopted rather than the nonadopted.

Dennis, W. (Ed). Historical Readings in Developmental Psychology. New York: Appleton-Century-Crofts, 1972.

Dennis, W. The Hopi Child. New York: Arno Press, 1972 (c. 1940).

Both social-anthropological and observational techniques are used in this study of the development of Hopi children in several villages. Part I, on the cultural milieu of the Hopi child, includes descriptions of the care and control of the child, play practices, and religious training. In Part II, there are detailed accounts of children at play, and of child behavior at ceremonial dances. Eight personality sketches of children are presented. There is a brief account of problem cases. A summary of findings compares the development of the Hopi child and the American child.

Al-Issa, Ihsan, and Dennis, Wayne. Cross-cultural Studies of Behavior. New York: Holt, Rinehart & Winston, 1970.

The book presents papers by various authors on (a) cross-cultural studies of perception, intellectual functioning, personality, and mental health; (b) cultural differences in child rearing and behavior; and (c) psycholinguistics. The book attempts to demonstrate "what can be achieved in human understanding when one steps outside his own culture."

Dennis, Wayne. Group Values Through Children's Drawings. New York: Wiley, 1966. 211 p.

Dennis, Wayne. (Ed). Readings in Child Psychology. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

A revision of the 1951 book containing parts which were not in earlier edition. One-third of the selections were published after 1951. The 54 selections are divided into 10 sections: "Prenatal and Neonatal Behavior," "Perceptual-Motor Development," "Emotional Development," "Language Development," "Intellectual Development," "Personality Development," "Duration--The Effects of Early Experiences," "Biological Influences Upon Development," "Cultural Influences Upon Behavior," and "The Development of Stability in Behavior." Each selection is prefaced by a short explanatory paragraph by the editor.

Dennis, Wayne, and Najarian, Pergrouhi. Infant Development Under Environmental Handicap. Washington, D.C.: American Psychological Association, 1957.

Dennis, Wayne, et al. Current Trends in Psychological Theory. Pittsburgh, Pa.: University of Pittsburgh Press, 1951. 213 p.

The 8 papers in this volume were presented at the University of Pittsburgh in February, 1951. The authors had a common task of discussing the status of psychological theory in several specialized areas as it is found at mid-century. Each paper emphasizes interpretation and evaluation rather than a simple review of literature. The authors and their contributions

are: Wayne Dennis, Developmental theories; Robert Leeper, Theories of personality; Harry F. Harlow, Learning theories; James J. Gibson, Theories of perception; David Krech, Cognition and motivation in psychological theory; David McK. Rloch, Theories of psychotherapy; W. S. McCulloch, Brain and behavior; and Herbert Feigl, Principles and problems of theory construction in psychology.

Dennis, Wayne. (Ed). Readings in Child Psychology. New York: Prentice-Hall, 1951. 624 p.

In this collection of 61 papers, 43 authors are represented by studies and theoretical papers relating to children's growth. The author states that his intention was "...to give adequate representation to every major subdivision of child psychology."

Dennis, W., et al. Current Trends in the Relation of Psychology to Medicine. Pittsburgh, Pa.: University of Pittsburgh Press, 1950. 189 p.

The purpose of this symposium is a facilitation of interdisciplinary planning and investigation. Robert Felix discusses psychology and public health. Carlyle Jacobson proposes the inclusion of socially oriented psychological training in medical education. Robert Patton reviews a number of experimental approaches to psychopathology. Yale Koskoff writes on psychology in neurological research. Paul Huston feel that psychiatrist and psychologist may best cooperate in the area of behavior research. Nathan Shock calls attention to the opportunities for psychologists to contribute to research on gerontology. H. J. Eysenck contrasts the relations between psychology and medicine in England and the U.S.

Dennis, Wayne. (Ed). Readings in General Psychology. New York: Prentice-Hall, 1949. 525 p.

This collection of 70 articles edited as readings for the general psychology course includes contributions from Aristotle to current research. The articles are arranged in 11 sections beginning with vision and audition and ending with personality and psychological development. This

arrangement represents the historical sequence of research in psychology. The remaining 7 sections are perception, emotion, motivation, learning, thinking, intelligence, and social behavior.

Dennis, Wayne, et al. Current Trends in Industrial Psychology. Pittsburgh, Pa.: University of Pittsburgh Press, 1949. 198 p.

A series of 8 papers presented under the auspices of the Department of Psychology in the College of the University of Pittsburgh, delivered during February 18 and 19, 1949. Each paper is concerned with a different aspect of industrial psychology, with emphasis on current problems and trends.

Dennis, Wayne. (Ed). Readings in the History of Psychology. New York: Appleton-Century-Crofts, 1948. 587 p.

This collection of readings includes 61 articles or extracts from larger works of 49 authors ranging from Aristotle (330 B.C.) to Clark Hull (1930). The selection of material presents in the various authors' own words, their ideas on theoretical subjects and the results of specific investigations.

Dennis, Wayne. (Ed). Current Trends in Social Psychology. Pittsburgh, Pa.: University of Pittsburgh Press, 1948. 299 p.

A series of 8 lectures delivered under the auspices of the Department of Psychology of the University of Pittsburgh, March 1948. The volume contains a preface by Wayne Dennis, The new social psychology, and the following lectures: Ronald Lippitt, A program of experimentation on group functioning and group productivity; K.T. Behanan, Cultural diversity and world peace; Jerome S. Bruner, An approach to social perception; J. L. Moreno, Experimental sociometry and the experimental method in science; Robert K. Merton, The social psychology of housing; Paul F. Lazarfeld, Communication research and the social psychologist; and James G. Miller, Psychological approaches to the prevention of war.

Dennis, Wayne. (Ed). Current Trends in Psychology. Pittsburgh, Pa.: University of Pittsburgh Press, 1947. 225 p.

The 8 papers comprising this volume were presented at a conference on current trends in psychology held at the University of Pittsburgh, March 5 and 6, 1947. Subjects are: Psychology as a profession (Dennis); Experimental psychology (Skinner); Child psychology (Sears); Clinical psychology (Kelly); Psychotherapy (Rogers); Personnel psychology (Flanagan); Human engineering (Morgan); and The sample interview survey (Likert).